

REMARKS/ARGUMENTS

Claims 25-28 remain pending herein. Claims 29-48 have been withdrawn from consideration by the U.S. PTO. New claims 49-52 are added hereby.

The Applicants thank Examiner Johnson for the courtesies extended during a telephone interview conducted on July 12, 2005. The substance of the discussion during that interview is incorporated in the following remarks.

The Applicants acknowledge the indication by Examiner Johnson during the July 12, 2005 telephone interview that the above amendments to claims 25 and 26 would not have been entered if presented after the final rejection dated April 22, 2005 (without the submission of a Request for Continued Examination), and that if those amendments were presented together with a Request for Continued Examination (as the applicants are doing presently), under no circumstances would the Applicants receive a first-action final rejection.

Claims 25 and 26 were rejected under 35 U.S.C. §102(b) over U.S. Patent No. 5,772,980 (Sul '980).

Claims 25 and 26 of the present application each recite a porous zeolite shaped body made of zeolite particles, the shaped body comprising a three-dimensional structure including pores defined between the particles. Claim 25 further recites that the zeolite particles are composed of TPA and silica sol in a mixing ratio of 0.015 to 0.08 by mole. Claim 26 recites that the zeolite particles are composed of TPA and silica sol in a mixing ratio of 0.02 to 0.12 by mole.

Sul '980 discloses fibrous zeolite. Sul '980 contains disclosure relating to the fact that zeolite particles have pores within the individual particles. Sul '980 discloses no structure in which pores are provided between individual zeolite particles.

Accordingly, it is respectfully requested that the U.S. PTO reconsider and withdraw this rejection.

Claims 25 and 26 were rejected under 35 U.S.C. §102(b) over U.S. Patent No. 5,413,975 (Mueller '975).

Mueller '975, like Sul '980, discloses zeolite particles which have pores within the individual particles. As with Sul '980, Mueller '975 discloses no structure in which pores are present between the individual particles. Accordingly, it is respectfully requested that the U.S. PTO reconsider and withdraw this rejection.

Claims 25 and 26 were rejected under 35 U.S.C. §102(b) over U.S. Patent No. 5,824,617 (Lai '617).

Lai '617 discloses a zeolite layer on a porous substrate (Lai '617, Fig. 4; column 1, lines 48-49; column 2, lines 29-32). The porous support disclosed in Lai '617 is formed of a material selected from a group listed in column 2, lines 32-38, which list does not include zeolite. The zeolite layer in Lai '617, as is conventional, does not include pores between the zeolite particles. As described in Lai '617, column 3, lines 9-15,

The zeolite crystals in the zeolite layer are intergrown in a membrane so that nonselective permeation paths through the membrane are blocked by the narrowest point of approach between crystals. Non-selective permeation pathways are taken to be permeation pathways which exist at room temperature that do not pass through the zeolite crystals.

In addition, Lai '617 discloses that the membranes are "virtually free of voids" (Lai '617, column 4, line 15).

As noted above, Lai '617 does not disclose any structure which is a porous zeolite shaped body made of zeolite particles and comprising a three-dimensional structure including pores defined between the particles. Accordingly, it is respectfully requested that the U.S. PTO reconsider and withdraw this rejection.

Claims 25-28 were rejected under 35 U.S.C. §103(a) over WO 00/23378 (WO '378) in view of Lai '617.

WO '378 discloses a structure including a porous zeolite substrate and a non-porous zeolite membrane on the substrate. The April 22, 2005 Office Action contains an acknowledgment that WO '378 does not disclose a porous zeolite substrate having a TPA/silica ratio as recited in either of claims 25 or 26 (claims 27 and 28 each ultimately depend from claim 25).

Lai '617 likewise does not disclose or suggest a porous substrate having a TPA/silica ratio as recited in either of claims 25 and 26. As noted above, Lai '617 discloses a zeolite layer on a porous substrate (Lai '617, Fig. 4; column 1, lines 48-49; column 2, lines 29-32). The porous support disclosed in Lai '617 is formed of a material selected from a group listed in column 2, lines 32-38, which does not include zeolite.

As noted above, WO '378 discloses a structure which includes (1) a film formed of zeolite and (2) a porous substrate formed of zeolite (for supporting the zeolite film). Lai '617 discloses forming a *non-porous* zeolite membrane having a particular TPA/silica ratio. There is no reason to suggest that persons of skill in the art would have been motivated to look to disclosure in Lai '617 regarding non-porous zeolite membranes when constructing a porous support for supporting a zeolite film.

In addition, the present specification demonstrates that shaped bodies according to the present invention achieve favorable results which would have been completely unexpected in view of the prior art. With regard to shaped bodies of completely crystallized zeolite particles, referring to Table 1 on page 60, the present inventors have demonstrated that as one increases the TPA/silica ratio of the porous shaped body from 0.000 to 0.005, to 0.010, and on up to 0.200, within the range of from 0.015 to 0.08, the four-point bending strength is

strikingly higher than when the TPA/silica ratio is below or above that range. The applied references contain no suggestion whatsoever that such high bending strength results would have been achieved for the porous shaped bodies within the scope of claim 25.

Likewise, with regard to shaped bodies of zeolite particles still under crystallization (as defined in the present specification, page 21, lines 5-9), referring to Table 2 on page 62, the present inventors have demonstrated that as one increases the TPA/silica ratio of the porous shaped body from 0.00 to 0.02, to 0.04, and on up to 0.20, within the range of from 0.02 to 0.12, the four-point bending strength is strikingly higher than when the TPA/silica ratio is below or above that range. The applied references contain no suggestion whatsoever that such high bending strength results would have been achieved for the porous shaped bodies within the scope of claim 26.

In view of the above, it is respectfully requested that the U.S. PTO reconsider and withdraw this rejection.

Claims 25-28 were rejected under 35 U.S.C. §103(a) over U.S. Patent No. 6,037,292 (Lai '292) in view of Lai '617.

Lai '292 discloses structures which include a zeolite membrane comprising at least two zeolite layers, and which may contain a porous substrate (Lai '292, col. 2, lines 35-47). The only porous material disclosed in Lai '292 is the substrate, and the only materials disclosed in Lai '292 for use as the substrate are porous stainless steel or alumina substrate. That is, Lai '292 does not disclose or suggest porous zeolite.

The April 22, 2005 Office Action contains an acknowledgment that Lai '292 does not disclose zeolite having a TPA/silica ratio as recited in either of claims 25 or 26 (claims 27 and 28 each ultimately depend from claim 25).

Lai '617 likewise does not disclose or suggest porous zeolite. As noted above, Lai '617 discloses a zeolite layer on a porous substrate (Lai '617, Fig. 4; column 1, lines 48-49; column 2, lines 29-32). The porous support disclosed in Lai '617 is formed of a material selected from a group listed in column 2, lines 32-38, which does not include zeolite.

In addition, as noted above, the present specification demonstrates that shaped bodies according to the present invention achieve favorable results which would have been completely unexpected in view of the prior art. The applied references contain no suggestion whatsoever that such the high bending strength results reported in Tables 1 and 2 of the present specification would have been achieved for the porous shaped bodies within the scope of claims 25 and 26, respectively.

In view of the above, it is respectfully requested that the U.S. PTO reconsider and withdraw this rejection.

If the Examiner believes that contact with Applicants' attorney would be advantageous toward the disposition of this case, the Examiner is herein requested to call Applicants' attorney at the phone number noted below.

The Commissioner is hereby authorized to charge any additional fees associated with this communication or credit any overpayment to Deposit Account No. 50-1446.

Respectfully submitted,



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